PROJECT COMPLETION REPORT

PIPELINE DECONTAMINATION SERVICES

Client:	***KEYSPAN ENERGY***
Contact(s):	Mr. Robert Wilson Mr. Wei Chiang
Project #:	E01133 – EPA DEMO
Job Date(s):	Friday, October 5, 2001
Location:	Shore Rd, Glenwood, NY
Scope:	+ Decontaminate 210' Of 20" Steel Gas Main + Perform Confirmatory PCB Wipe Sampling + Analyze PCB Content Of Post-Cleaning Solution
Method:	PCB Mega Rule Compliance Program Triple Rinse Jet Cleaning System – 2,000psi Spray Wash

The following items are included:

- Operations Summary
- PCB Decontamination Certificate
- Job Site Sketch
- Analytical Results
- Digital Photo Log
- Project Video Clips (CD Rom)

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OPERATIONS SUMMARY

PROJECT #: E01133 – EPA DEMO

Client Name: **Keyspan Energy**
Site Location: Shore Road, Glenwood, NY
Project Date(s): Friday, October 05, 2001

Scope:

The scope of this project was to jet clean and decontaminate PCBs in approximately 210' feet of 20" steel natural gas transmission pipeline and to demonstrate sampling equivalency as described below. As this 210' section of pipe was being decontaminated in conjunction with a field demonstration, the Client conducted pre-cleaning wipe samples on the two open ends of the pipe. Results indicated PCB contamination to be 6532 ug/100 cm^2 on the north end and 8091 ug/100 cm^2 on the south end. The pipe segment to be decontaminated in this project was slated to be "abandoned in-place". A project sketch that identifies the cleaned pipe as well as the general site location is included with this report.

For the purposes of providing documentation in support of its June 3, 1999 request for approval of an alternative decontamination verification sampling method for natural gas pipeline contaminated with PCBs (Approval Request), Enviro Jet sampled both ends of the section, as well as other segments in accordance with the procedures at 40 CFR 761.247 (b) after the decontamination process. The purpose of this confirmatory sampling was to demonstrate that sampling the ends of the decontaminated section, following the decontamination process described in the Approval Request, is, for the purposes of 40 CFR 761.79 (h) (3), equivalent to the sampling procedures set forth for non-porous surfaces at 40 CFR 761 Subpart P.

Pursuant to discussions with officials of the US Environmental Protection Agency (EPA), Enviro Jet followed the procedures at 40 CFR 761.247 (b) (procedures intended to be used for identifying appropriate sample site selection for pipe segments removed from the ground) to document that the sample results from the two ends of the 210' pipe section that was decontaminated yield results equivalent to the four (4) samples taken (at approximately 45' intervals) in the pipe segments within the 210' section. In the demonstration test all post-decontamination samples were less than 2.0 ug/100cm^2.

Each of the sampling points were analyzed at the upstream end of the segment using a standard wipes test following the guidelines of Subpart M of the Mega Rule. The sampling locations are noted in the project sketch and documented in the Digital Photo Log.

Cleaning Solution & Storage:

Enviro Jet developed Enviro Clean, an effective and non-hazardous PCB decontaminating solution that is utilized in all of our cleaning projects. Our terpene-hydrocarbon based solution is a PODF (performance-based organic decontamination fluid) that is approved by the EPA under the Mega Rule, 40 CFR 761.79. Please note that the solution is diluted 10 parts to 1 with water. Enviro Jet, in conjunction with Keyspan Laboratory Services, successfully completed an extensive validation study under the procedures stated in Subpart T of the Mega Rule. This validation study demonstrated the ability of Enviro Clean to decontaminate PCBs from the surfaces of non-porous materials.

On the day of the project, Enviro Jet arrived on site with a new 500-gallon batch of Enviro Clean to be used on this cleaning project. As the solution had never been used, there were no PCBs present. At the completion of the project, the cleaning solution was sampled for PCB content and placed back in the Client's storage tank at their Hicksville, NY facility.

Cleaning Process:

Enviro Jet's Mega Rule cleaning process complies with the disposal requirements cited in 40 CFR Part 761.60 (b) (5) (i) (C) (1). Our system was designed to follow these procedures to safely and effectively decontaminate PCBs in natural gas pipelines to a level that is considered "non-PCB" under the law, which is less than 10 ug / 100cm^2 or 50 ppm.

Following the approved procedures under the Mega Rule, all pipe segments in this project were triple rinsed utilizing Enviro Jet's proprietary high-pressure jet-cleaning decontamination method. Enviro Jet utilized our custom designed frenco/pvc fittings on each end of the gas main and installed drip pans under the connections to provide an extra measure of spill protection. The top port of the fitting allows for the entry of our jet hose and cleaning nozzle while the bottom port of the fitting is connected to our vacuum hose.

The cleaning process involves a high-pressure application of the cleaning solution through a radial vortex nozzle and continuous vacuum recovery of the applied cleaning solution. Our custom designed and cleaning system truck is a dual-purpose vehicle that can jet clean and vacuum at the same time.

The nozzle propels itself through the pipeline using the reverse pressure of the jets while applying the cleaning solution to the entire surface of the pipe walls. This process is performed three times as directed by the "triple rinse" guidelines of the Mega Rule. The final cleaning pass is drawn back to the vacuum recovery port by utilizing the hydraulic hose reel. The pressure of the solution on the final pass flushes any loose debris, as well as freestanding solution, back to our vacuum recovery.

Cleaning Fluid Application & Recovery:

The interior surfaces of the pipe segment was jet-sprayed three times at 2,000psi with Enviro Clean solution applying a minimum of ten percent of the total pipe segment volume. For 210' of 20" pipeline the total segment volume is 3,427.2 gallons. Therefore to achieve compliance, a minimum of 342.72 gallons would need to be applied to the pipe segment. A total of 500 gallons of cleaning solution was utilized in the decontamination process. The cleaning fluid was applied at a rate of 40 gallons per minute for a total of 12 1/2 minutes from the radial vortex nozzle.

A total of 498 gallons of the cleaning solution was recovered via the cleaning unit's high-pressure vacuum system and accounted for in the Client's storage tanks. This meets the minimum compliance standard of 95% liquid recovery as stated in the Mega Rule.

PCB Wipe & Liquid Sample Analysis:

Enviro Jet's Haz Mat technicians are fully trained in the performance of applying a standard wipe test under 40 CFR 761.123, Subpart M and the document "Wipe Sampling and Double Wash/Rinse Cleanup as recommended by the EPA PCB Spill Clean Up Policy" of June 23, 1987 and revised on April 18, 1991.

Following the above guidelines, confirmatory wipe samples were taken at the exposed ends of each pipe segment immediately following the decontamination process. As previously mentioned, for sake of the sampling protocol equivalency, four additional confirmatory wipe samples were taken at four additional points within the 210' section approximately 45' apart. The analytical results for all samples indicated that the PCB concentration of each segment sampled to be less than 10 ug / 100 cm^2 (< 50 ppm). In fact, the samples indicated that PCBs were un-detectable in the wipe samples. Based on these results and our cleaning method, the pipe segments, as defined by the PCB Decontamination Report, Project Sketch and supporting analytical documentation may be removed from the ground and disposed of as non PCB material or "abandoned in place" with no further action.

An aqueous sample of the cleaning solution was analyzed after the decontamination process. The results of this analysis indicated the PCB concentration in the cleaning solution to be less than 2 ppm, thus allowing it to be re-used on future decontamination projects.

Copies of all analytical data for pre and post cleaning are included with this report.

Equivalency to EPA Standards:

Enviro Jet has requested to use, as confirmatory sampling pursuant to 40 CFR 761.79 (f) (1), sampling the two open ends of pipe sections that are to be removed from service. EPA's regulations require that confirmatory sampling meet the requirements set forth in Subpart P (for non-porous surfaces). As indicated in the June 3, 1999 Approval request, this subpart does not contain a viable method for sampling internal surfaces of pipe that has been decontaminated (procedures are set forth for "large nearly flat surfaces" and "small or irregularly shaped surfaces" neither of which can be used for pipe surfaces). The regulations provide, however, that EPA can approve procedures equivalent to those procedures set forth in the regulations.

Pursuant to discussions with EPA officials, for purposes of demonstrating equivalency Enviro Jet has looked to the procedures for confirmatory sampling of natural gas pipeline sections in another Subpart of the regulations. Those procedures were developed for pipe abandonment and disposal, and not specifically for decontamination. As the pipe that is to be decontaminated using the Enviro Jet process is identical to the pipe for which the procedures at Subpart M were promulgated, Enviro Jet followed the procedures set forth in the Subpart, and specifically those set forth for pipeline sections to be removed – 40 CFR 761.247 (b).

The sampling process involved taking standard wipe samples as defined by 40 CFR 761.3 (as required pursuant to 761.243 and 761.306 (d)) at both open ends of the section to be decontaminated. The equivalency determination involved taking four additional samples, at intervals along the 210' section of pipe that was the subject of this demonstration, to determine whether post-decontamination samples at the four intervals indicated PCB levels equivalent to those at the two open ends. As set forth in the attached pages, the results for each of the six post-decontamination samples were less than 2.0 $ug/100cm^2$.

Based on these results, Enviro Jet submits that the proposed alternative confirmatory sampling procedures identified in the Approval Request are equivalent to those set forth in the Appendix P, and yield results equivalent to the procedures set forth in the most directly-related procedures that EPA approved in promulgating the amendments to 40 CFR Part 761.

Therefore, Enviro Jet submits this Report in support of its Proposal Request to allow use of a standard wipe test at both open ends of a pipeline section to meet the standard for confirmatory sampling set forth in 40 CFR 761.79 (f).

Mega Rule Compliance Attestation:

Enviro Jet's cleaning method, cleaning solution, liquid recovery criteria and analytical procedures were performed and completed in accordance with 40 CFR Part 761 and are documented in this Project Completion Report.

EJT Project Manager

David L. Wickersham

Initials: _____

DECONTAMINATION CERTIFICATE

PROJECT #: E01133 EPA DEMO

Client:	Keyspan Energy
Site Location:	Shore Road, Glenwood, NY
Project Date(s):	Friday, October 05, 2001
Decontamination Method:	Triple Rinse – Jet Cleaning Process
Pipe Size & Construction:	20" Steel Gas Main
Segment Length:	210 Feet Total
Solution Applied:	500 Gallons
Solution Recovered:	498 Gallons
Recovery:	99%

In compliance with the requirements of 40 CFR Part 761.60 and 761.79, Enviro Jet Technologies submits the following certification:

The natural gas pipeline segments defined below have been decontaminated of polychlorinated biphenyls (PCBs) consistent with 40 CFR Part 761. Specifically, the interior surfaces have been decontaminated with a triple rinse spray wash process utilizing an approved terpene-hydrocarbon decontaminating fluid. Each segment was flushed with a minimum of ten percent of the total pipe segment volume and a minimum of 95% of the applied solution was recovered from the pipeline.

SAMPLING SECTION ID #	DISTANCE FROM STARTING POINT #1	DATE COMPLETED
Post Clean 1	0'	October 05, 2001
Post Clean 2	25'	October 05, 2001
Post Clean 3	70'	October 05, 2001
Post Clean 4	115'	October 05, 2001
Post Clean 5	155'	October 05, 2001
Post Clean 6	210'	October 05, 2001

As part of our standard procedure, confirmatory testing on the exposed ends of the designated pipeline segment was performed. Due to the fact that this project was also a field demonstration of Enviro Jet's proposed alternative sampling methodology, confirmatory samples were taken at four additional locations within the 210' pipe segment. All wipe samples were taken consistent with the procedures in Subpart M of 40 CFR Part 761. All segments analyzed were found to have PCB concentration of less than 10 ug / 100 cm^2 (< 50 ppm). Analytical documentation supporting these results is enclosed with this report.

The post-cleaning solution was also analyzed for PCBs after the decontamination process. The results of this analysis indicated that the PCB content in the solution was 1.254 ppm. This is less than our self imposed guideline of 10 ppm as well as the Mega Rule's guideline of 50 ppm. This solution may be re-used on future decontamination projects.

Therefore, Enviro Jet certifies that the above designated pipeline segments are "non-PCB", as defined by 40 CFR Part 761 and confirmatory sampling results, as of the date noted in the table. The pipeline segments cleaned in this project may now be "abandoned in place" with no further action or removed and disposed of as non-PCB material.

Project Manager Attestation:

Print Name: David L. Wickersham

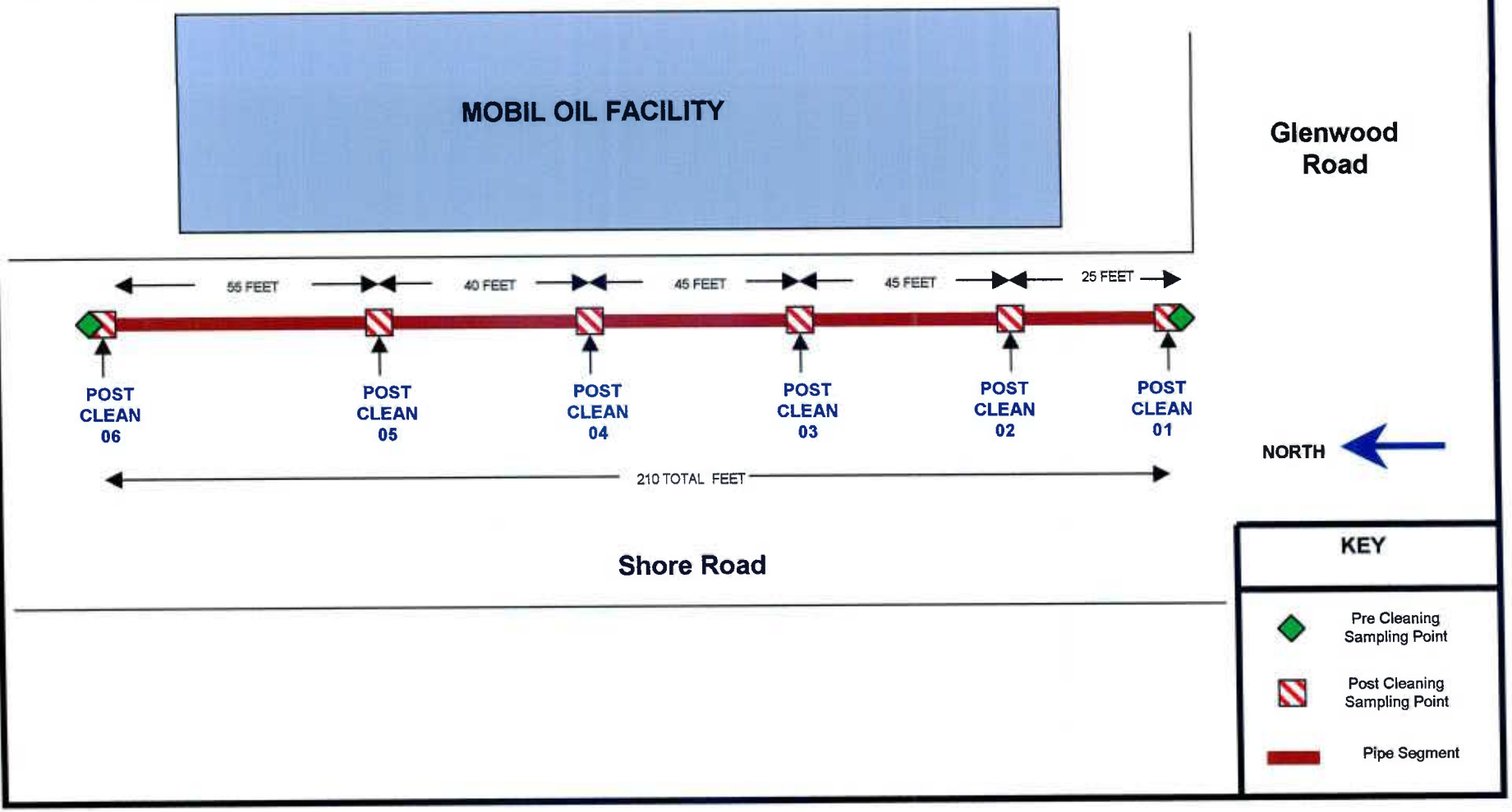
Signature: DWW

Date: 10/24/01

PROJECT SKETCH

ENVIRO JET TECHNOLOGIES

Project # :	E01133 EPA DEMO
Client:	Keyspan Energy
Site Location:	Shore Road, Glenwood, NY
Size & Construction:	20" Steel Gas Main
Segment Length:	210 Feet
Scope:	PCB Decontamination For Mega Rule Compliance
Method:	Triple Rinse - Jet Cleaning Process @ 2000 psi



KEYSPAN
287 Maspeth Avenue, Brooklyn, NY 11211
Phone: (718) 963-5421, Fax: (718) 963-3026

Lab Report #: BL0110079
ELAP Number: 11173

KeySpan Laboratory Services
Certificate of Results

Customer Information

Company Name: Enviro Jet Technologies
Customer Contact: David L. Wickersham
Address: 517 Clubhouse Drive
Middletown, NJ 07748

Phone Number: 7322756693
Fax Number: 7322756694
Customer PO:
Project ID: PCB Wipes & CitriKleen Samples

Laboratory Information

Receive Date: 10/5/2001 2:45:14 PM Approved By: 2832 Report Date: 10/8/2001

Sample ID: **BL0110079-01** Matrix: Solid Customer Sample #: Pre Clean 1
Collect Date and Time: 10/5/2001 Collector: Gerald Coogan
Location: shore road

Test	Parameters	Result	Qualifier	Comments
Method: SW 846 - 8082	Analysis Date: 10/7/2001			D.F. 1
PCB Wipe Analysis	Aroclor 1016 (PCB-1016)	2.0 µg/100 cm2	U	
	Aroclor 1221 (PCB-1221)	2.0 µg/100 cm2	U	
	Aroclor 1232 (PCB-1232)	2.0 µg/100 cm2	U	
	Aroclor 1242 (PCB-1242)	6532 µg/100 cm2		
	Aroclor 1248 (PCB-1248)	2.0 µg/100 cm2	U	
	Aroclor 1254 (PCB-1254)	2.0 µg/100 cm2	U	
	Aroclor 1260 (PCB-1260)	2.0 µg/100 cm2	U	

Sample Comment: PCB Analysis via Single Column

Sample ID: **BL0110079-02** Matrix: Solid Customer Sample #: Pre Clean 6
Collect Date and Time: 10/5/2001 Collector: Gerald Coogan
Location: shore road

Test	Parameters	Result	Qualifier	Comments
Method: SW 846 - 8082	Analysis Date: 10/7/2001			D.F. 1
PCB Wipe Analysis	Aroclor 1016 (PCB-1016)	2.0 µg/100 cm2	U	
	Aroclor 1221 (PCB-1221)	2.0 µg/100 cm2	U	
	Aroclor 1232 (PCB-1232)	2.0 µg/100 cm2	U	
	Aroclor 1242 (PCB-1242)	8091 µg/100 cm2		
	Aroclor 1248 (PCB-1248)	2.0 µg/100 cm2	U	
	Aroclor 1254 (PCB-1254)	2.0 µg/100 cm2	U	
	Aroclor 1260 (PCB-1260)	2.0 µg/100 cm2	U	

Sample Comment: PCB Analysis via Single Column

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Sample ID: **BL0110079-03** Matrix: Solid Customer Sample #: Post Clean 1

Collect Date and Time: 10/5/2001 Collector: Gerald Coogan

Location: shore road

Test	Parameters	Result	Qualifier	Comments
Method: SW 846 - 8082	Analysis Date: 10/7/2001			D.F. 1
PCB Wipe Analysis	Aroclor 1016 (PCB-1016)	2.0 µg/100 cm2	U	
	Aroclor 1221 (PCB-1221)	2.0 µg/100 cm2	U	
	Aroclor 1232 (PCB-1232)	2.0 µg/100 cm2	U	
	Aroclor 1242 (PCB-1242)	2.0 µg/100 cm2	U	
	Aroclor 1248 (PCB-1248)	2.0 µg/100 cm2	U	
	Aroclor 1254 (PCB-1254)	2.0 µg/100 cm2	U	
	Aroclor 1260 (PCB-1260)	2.0 µg/100 cm2	U	

Sample Comment: PCB Analysis via Single Column

Sample ID: **BL0110079-04** Matrix: Solid Customer Sample #: Post Clean 2

Collect Date and Time: 10/5/2001 Collector: Gerald Coogan

Location: shore road

Test	Parameters	Result	Qualifier	Comments
Method: SW 846 - 8082	Analysis Date: 10/7/2001			D.F. 1
PCB Wipe Analysis	Aroclor 1016 (PCB-1016)	2.0 µg/100 cm2	U	
	Aroclor 1221 (PCB-1221)	2.0 µg/100 cm2	U	
	Aroclor 1232 (PCB-1232)	2.0 µg/100 cm2	U	
	Aroclor 1242 (PCB-1242)	2.0 µg/100 cm2	U	
	Aroclor 1248 (PCB-1248)	2.0 µg/100 cm2	U	
	Aroclor 1254 (PCB-1254)	2.0 µg/100 cm2	U	
	Aroclor 1260 (PCB-1260)	2.0 µg/100 cm2	U	

Sample Comment: PCB Analysis via Single Column

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Lab Report #: BL0110079

ELAP Number: 11173

KeySpan Laboratory Services
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Sample ID: **BL0110079-05** Matrix: Solid Customer Sample #: Post Clean 3

Collect Date and Time: 10/5/2001 Collector: Gerald Coogan

Location: shore road

Test	Parameters	Result	Qualifier	Comments
Method: SW 846 - 8082	Analysis Date: 10/7/2001			D.F. 1
PCB Wipe Analysis	Aroclor 1016 (PCB-1016)	2.0 µg/100 cm2	U	
	Aroclor 1221 (PCB-1221)	2.0 µg/100 cm2	U	
	Aroclor 1232 (PCB-1232)	2.0 µg/100 cm2	U	
	Aroclor 1242 (PCB-1242)	2.0 µg/100 cm2	U	
	Aroclor 1248 (PCB-1248)	2.0 µg/100 cm2	U	
	Aroclor 1254 (PCB-1254)	2.0 µg/100 cm2	U	
	Aroclor 1260 (PCB-1260)	2.0 µg/100 cm2	U	

Sample Comment: PCB Analysis via Single Column

Sample ID: **BL0110079-06** Matrix: Solid Customer Sample #: Post Clean 4

Collect Date and Time: 10/5/2001 Collector: Gerald Coogan

Location: shore road

Test	Parameters	Result	Qualifier	Comments
Method: SW 846 - 8082	Analysis Date: 10/7/2001			D.F. 1
PCB Wipe Analysis	Aroclor 1016 (PCB-1016)	2.0 µg/100 cm2	U	
	Aroclor 1221 (PCB-1221)	2.0 µg/100 cm2	U	
	Aroclor 1232 (PCB-1232)	2.0 µg/100 cm2	U	
	Aroclor 1242 (PCB-1242)	2.0 µg/100 cm2	U	
	Aroclor 1248 (PCB-1248)	2.0 µg/100 cm2	U	
	Aroclor 1254 (PCB-1254)	2.0 µg/100 cm2	U	
	Aroclor 1260 (PCB-1260)	2.0 µg/100 cm2	U	

Sample Comment: PCB Analysis via Single Column

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Lab Report #: BL0110079

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Sample ID: **BL0110079-07** Matrix: Solid Customer Sample #: Post Clean 5

Collect Date and Time: 10/5/2001 Collector: Gerald Coogan

Location: shore road

Test	Parameters	Result	Qualifier	Comments
Method: SW 846 - 8082	Analysis Date: 10/7/2001			D.F. 1
PCB Wipe Analysis	Aroclor 1016 (PCB-1016)	2.0 µg/100 cm2	U	
	Aroclor 1221 (PCB-1221)	2.0 µg/100 cm2	U	
	Aroclor 1232 (PCB-1232)	2.0 µg/100 cm2	U	
	Aroclor 1242 (PCB-1242)	2.0 µg/100 cm2	U	
	Aroclor 1248 (PCB-1248)	2.0 µg/100 cm2	U	
	Aroclor 1254 (PCB-1254)	2.0 µg/100 cm2	U	
	Aroclor 1260 (PCB-1260)	2.0 µg/100 cm2	U	

Sample Comment: PCB Analysis via Single Column

Sample ID: **BL0110079-08** Matrix: Solid Customer Sample #: Post Clean 6

Collect Date and Time: 10/5/2001 Collector: Gerald Coogan

Location: shore road

Test	Parameters	Result	Qualifier	Comments
Method: SW 846 - 8082	Analysis Date: 10/7/2001			D.F. 1
PCB Wipe Analysis	Aroclor 1016 (PCB-1016)	2.0 µg/100 cm2	U	
	Aroclor 1221 (PCB-1221)	2.0 µg/100 cm2	U	
	Aroclor 1232 (PCB-1232)	2.0 µg/100 cm2	U	
	Aroclor 1242 (PCB-1242)	2.0 µg/100 cm2	U	
	Aroclor 1248 (PCB-1248)	2.0 µg/100 cm2	U	
	Aroclor 1254 (PCB-1254)	2.0 µg/100 cm2	U	
	Aroclor 1260 (PCB-1260)	2.0 µg/100 cm2	U	

Sample Comment: PCB Analysis via Single Column

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Lab Report #: BL0110079
ELAP Number: 11173

KeySpan Laboratory Services
Certificate of Results

ACCREDITED IN ACCORDANCE WITH nelac

Sample ID: **BL0110079-09** Matrix: Aqueous Customer Sample #: Enviro Clean

Collect Date and Time: 10/5/2001 Collector: Gerald Coogan

Location: shore road

Test	Parameters	Result	Qualifier	Comments
Method: SW 846 - 8082	Analysis Date: 10/7/2001		D.F. 1	
PCBs	Aroclor 1016 (PCB-1016)	0.05 µg/L	U	
	Aroclor 1221 (PCB-1221)	0.05 µg/L	U	
	Aroclor 1232 (PCB-1232)	0.05 µg/L	U	
	Aroclor 1242 (PCB-1242)	1254 µg/L		
	Aroclor 1248 (PCB-1248)	0.05 µg/L	U	
	Aroclor 1254 (PCB-1254)	0.05 µg/L	U	
	Aroclor 1260 (PCB-1260)	0.05 µg/L	U	

Sample Comment: PCB Analysis via Single Column

SAMPLE CONDITION RECORD

Are samples submitted with a chain of custody?	Yes	Are the number of samples the same as stated on the chain of custody?	Yes
Are bottle caps tight and securely in place?	Yes	Were samples within the holding time for the requested test(s)?	Yes
Were all containers intact when received?	Yes	Is the volume of sample submitted sufficient for the requested test(s)?	Yes
Were samples submitted in an ice chest?	No	Are all samples for volatile organic analyses free of headspace?	N/A
Were samples received cold?	No		

Qualifiers:
- U - Indicates compound was analyzed for but not detected.
- D - Diluted
- B - Indicates that compound was found in associated blank as well as in the sample.
- UD - Indicates diluted compound was analyzed for but not detected.
- J - Indicates the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero (0).
- E - Exceeds calibration range, dilution to follow.
- N - QC criteria was not met for matrix spike recovery.

Comments: All solid sample results are reported on a dry weight basis, unless otherwise noted.

ND - Not Detected NA - Not Analyzed

Approval Signature

DIGITAL PHOTO LOG
PROJECT # E01133-EPA DEMO

Client: Keyspan Energy
Location: Shore Road, Glenwood, NY
Date(s): Friday, October 05, 2001

DIGITAL PHOTO LOG (cont'd)

DIGITAL PHOTO LOG (cont'd)